



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105

Via Electronic Mail and U.S. Postal Service Mail

June 7, 2012

Mr. Brian Kelly
Chevron Business and Real Estate Services
145 South State College Boulevard, Suite 400
Brea, California 92821

**Re: Birch Hills Golf Course in Brea, California
PCB Sampling and Remediation in Planning Area 12B**

Dear Mr. Kelly:

The U.S. Environmental Protection Agency, Region 9 ("EPA") has reviewed Amendment #5, "*Planning Area 12B Soil Excavation and Deep Soil Sample and Analysis Plan, April 24, 2012*" and Amendment #5a, "*Modified Planning Area 12B Soil Excavation and Deep Soil Sample and Analysis Plan, May 2012*." These documents were submitted by URS Corporation ("URS") on behalf of Chevron Land and Development Company ("Chevron"), which is supporting the site owner Union Oil Company of California, and amend Chevron's November 18, 2011 "*Soil Management and Sample Analysis Plan*" ("SMSAP"). Amendment #5 and #5a outline remediation activities within Planning Area 12B ("PA 12B") of the Birch Hills Golf Course ("Site"), and include information for additional characterization sampling and excavation of soils contaminated with polychlorinated biphenyls ("PCBs"). PA 12B is approximately 11 acres and is planned for residential redevelopment.

EPA is hereby approving with conditions Amendments #5 and #5a under the Toxic Substances Control Act ("TSCA") regulations in 40 C.F.R. § 761.61(c) for a risk-based cleanup. Unocal/Chevron/URS must implement Amendments #5 and #5a as modified by the approval conditions established below. The general conditions of approval in Section C of EPA's May 7, 2012 letter approving the SMSAP are incorporated herein by reference.

Conditions of Approval

1. Sampling Locations. In Table 9 of Amendment #5, Chevron/URS propose an additional 59 samples across 12 borings within PA 12B. EPA has reviewed these sample locations and has the following comments and conditions:

1.1 Sampling in the "10-foot below final grade" planned excavation zone.

Comment: EPA believes that additional sampling of soil in the planned initial excavation zone is unnecessary. For example, at proposed boring R-12 which is next to existing

boring GS-49, EPA understands that all soils above 375.5 feet¹ (above mean sea level, msl) will be excavated. Since the current elevation at this location is 397 feet msl, samples at depths ranging from 0 to 21-feet bgs would lie within the planned excavation boundary. Sampling within that range would not characterize soils that would otherwise be left in place and thus, do not inform the extent of additional excavation.

1.2 Additional characterization sampling coverage.

Condition: Chevron/URS shall collect samples in three additional borings, in grid areas U-14, L-9, and N-12. These three borings must be carried out in addition to Chevron's/URS' other 12- proposed sampling borings, at depth down to 5-feet below native soil surface. Sampling of these borings will not encompass the soil intervals representing soils that are already a part of the planned initial excavation to 10-feet below final grade, as described in Comment 1.1 above.

Comments: EPA has examined past sample boring data to assess where samples have been taken at depths greater than 7 feet bgs. Areas U-14, L-9, and O-12 provide additional sampling coverage for those areas which are not covered by previous or currently proposed characterization boring locations. The purpose of this extra characterization sampling is to provide additional information about soils that will not be removed during the initial excavation.

1.3 Excavation surface sampling.

Comment: In Amendment #5a, Chevron also proposes an additional 20 soil samples to be collected in the approximate range of 10 feet to 12 feet below final grade prior to the initial excavation of soil. EPA does not consider these samples to be 'confirmation' but rather 'characterization' samples. During excavation activities, cross-contamination and / or mixing of soils at the excavation surface could occur, so these samples would not ensure that the cleanup level at the excavation surface is met. In place of these proposed samples, please refer to condition 5 below for options regarding the excavation surface.

2. Cleanup Level and Risk Exposure Model.

Condition: EPA has determined that 2 mg/kg, as opposed to 4 mg/kg, is the appropriate risk-based screening level ("RBSL") for PCBs in soils deeper than 10 feet below final grade in PA 12B. Chevron/URS shall compare the upper confidence limit of the mean ("UCL") for all samples within a given exposure unit area, also known as the exposure point concentration, to 2 mg/kg total PCBs.

EPA considers the appropriate exposure area for construction workers to be the entire PA 12B area, and samples used for the calculation of the UCL shall include all characterization and confirmation samples that have been taken in non-excavated volumes of soil.

¹ Information on excavation depths/elevations in PA 12B provided by URS by email on March 23, 2012 in a table of planned excavation depths.

Comment: A derivation for this number has been submitted by Chevron/URS to EPA in Amendment #7, "Risk Receptor Revisions." While Amendment #7 has not been approved by EPA at this time, EPA has reviewed the equations and assumptions for the construction worker RBSL. In deriving the 4 mg/kg RBSL for PCBs, Chevron/URS make the assumption that the construction worker will spend half their time in PA 12B and the other half in another portion of the site. However, EPA does not agree with this assumption.

3. Dust Suppression.

Comment: EPA believes that soils contaminated with PCBs may migrate from the Southwestern Golf Course and Hole 12 to residential areas such as PA 12B during soil moving and excavation activities. This may occur via wind-blown dispersion or unmanaged stormwater runoff. Chevron/URS should make adequate efforts to mitigate migration of contaminated soils to residential areas through proper soil management practices.

4. Excavation dimensions.

This condition applies to excavations beyond the initial 10-foot below final grade excavation. As a clarification, excavation depths have been defined with respect to final elevation since current ground surface elevation is highly variable while final grade is relatively level. Thus the initial excavation does *not* represent uniform excavation of soils 10-feet below current ground surface.

Condition: Although not stated in Amendment #5 or #5a, Chevron/URS has described in discussions with EPA a general excavation approach around targeted sample locations that will remove soils in a 20 by 20-foot square centered around the contaminated sample location. In PA 12B, the new ground surface at this stage of remediation will be the 10-foot below final ground surface elevation, and the depth of each excavation will extend from that new ground surface down to 1-foot below the soil sample of concern. Chevron/URS must adhere to this stated approach or submit in writing an alternative excavation approach for EPA approval. If the UCL of the sample data set results in an exposure point concentration ("EPC") that is higher than the cleanup level, additional excavations must be conducted until the EPC is equal to or below the cleanup level.

Comment: Chevron/URS will conduct two types of excavations in PA 12B: an initial excavation in which all soils above 10-feet below final grade will be transported to the Northern Consolidation Area, and additional smaller excavations below the new ground surface, as necessary, such that the UCL of the sampling data set meets the cleanup level in this area.

5. Excavation boundary surface.

Background: Tiered cleanup levels have been established for PA 12B. The initial depth of concern is 10 feet below final grade; the cleanup level for soils to that depth is 0.22 mg/kg. Beyond 10 feet, the cleanup level is 2 mg/kg. Chevron/URS plan to achieve the cleanup level down to 10 feet below final grade by excavating and backfilling with onsite clean soils the entire volume of soils to that depth. All samples taken from the proposed backfill soils in the planned onsite Northern Consolidation Area have resulted in non-detect values for PCBs, thus meeting the 0.22 mg/kg cleanup level.

Below 10 feet, the remediation goal of 2 mg/kg must be met prior to the start of geotechnical work. This means that the UCL of the mean for the sampling data set must be below the cleanup level of 2 mg/kg. Mixing that will occur during geotechnical work is not a lawful remedy to meet cleanup goals. Since soils containing PCBs above the RSL for unrestricted land use will be left in place, a land use restriction will be required for these soils based on the original in-situ concentrations. Chevron/URS must ensure that the applicable cleanup level is met at all depths in PA 12B.

Condition: Chevron/URS has three options to ensure that the cleanup goal is met at all depths in PA 12B:

- a. Over-excavate to 11 feet below final grade.** Chevron may over-excavate to 11 feet below final grade to ensure that the boundary surface at 10 feet meets the cleanup level. Chevron must also prepare a restrictive covenant that includes the information described in option c below if additional sampling below the new ground surface is not conducted or if soils exceeding the 2 mg/kg cleanup level are left in place.
- b. Perform confirmation sampling.** Chevron/URS will submit a plan to EPA to carry-out confirmation sampling at the boundary surface after the initial excavation. The analytical results for these samples would be compared to the cleanup level for the soils above it in elevation: 0.22 mg/kg. If the cleanup level is not met, Chevron must excavate further to meet the cleanup level or use a restrictive covenant to leave in place soils that do not meet the cleanup level at the boundary surface in addition to soils below the boundary surface that do not meet the 2 mg/kg cleanup level. The covenant would include the information described in option c below.
- c. No further action proposal combined with a restrictive covenant.** Chevron/URS must submit a no further action proposal for PA 12B that includes a restrictive covenant. However, the initial 10 foot excavation is excluded from the "no further action" proposal. At a minimum, the restrictive covenant must include the information described below.
 - the as-found concentration of all samples above the cleanup level of 2 mg/kg, in addition to the survey coordinates for each sample
 - any locations where additional soils beyond 10 feet below final grade have been removed such that the UCL of the mean of all samples in this area meets the cleanup level of 2 mg/kg

- language similar to the following statements regarding the remedial actions:
 - “Uncertainties remain as to the presence and concentration of other locations at the site which have not been characterized or adequately characterized.”
 - “Confirmation samples have not been taken since EPA considers the initial 10 foot below final grade excavation to be a reduction in volume of contaminated soil as well as a risk-protective measure for residents in the near future.”

Chevron/URS must choose one option among options a, b, or c and implement the chosen option as described. The cleanup levels in PA 12B must be met through engineered remedies and institutional controls. These options provide ways to achieve those cleanup levels.

6. Data analysis and ProUCL.

Condition: Once initial excavations and confirmation sampling have been completed, Chevron/URS must provide EPA with ProUCL results and calculations for review prior to the start of geotechnical work. If possible, please provide EPA with sample analysis results as Chevron receives them from the laboratory, or within 3 days of receipt of the analytical data. EPA will review the results to ensure that cleanup levels for PA 12B have been met. This submission is crucial to ensure compliance with TSCA’s anti-dilution policy in 40 C.F.R. § 761.1(b).

7. Backfill depth.

Condition: Chevron/URS must achieve 10 feet of clean fill after (instead of before) compaction.

Comment: Chevron/URS may choose to survey the 10-foot excavation surface after geotechnical work has been performed on soils below that surface, then survey the final grade surface to ensure that this condition is met.

8. One-year time limit.

Condition: Chevron/URS must complete all planned PA 12B remediation activities within 1 year of the start of excavation.

Summary

EPA understands that the following sampling and remediation activities will take place in PA 12B:

1. Additional characterization sampling below the 10-foot (below final grade) excavation zone as proposed in Amendments #5 and #5a and as modified by Condition 1 of this Approval.

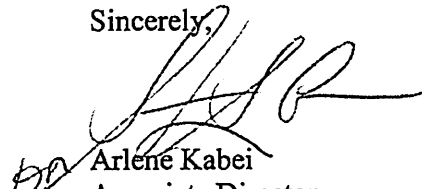
2. Excavation of all soils down to 10-feet below final grade in PA 12B.
3. Further excavation of PCB contaminated soil beyond 10-feet below final grade (if needed) to achieve a UCL below 2 mg/kg.
4. Confirmation sampling in excavated areas (or as modified by Condition 5).
5. Geotechnical mixing of remaining soils – approximately 10 to 30 feet below final grade.
6. Backfill 10 feet of clean soil to achieve final grade as clarified in Condition 7.

The execution of activities in PA 12B are contingent upon approval of Amendment #8, "*Soil Management During Excavation and Equipment Decontamination*," which covers Equipment decontamination, as well as Amendments #3, "*Remedial Alternative Evaluation*," and #6, "*Northern Consolidation Area Design*," which cover soil movement to and from the Northern Consolidation Area.

This conditional approval does not relieve the site owner, Union Oil Company of California, and supporting companies Chevron Land Development Company and URS Corporation, from complying with all other applicable federal, state, and local regulations and permits. Departure from the approval conditions without prior written permission from EPA may result in the commencement of proceedings to revoke this approval, and /or an enforcement action. Nothing in this approval bars EPA from imposing penalties for violations of this approval, for violations of other applicable TSCA PCB requirements, or for activities not covered under this approval.

We look forward to assisting you with the implementation of Amendments #5 and #5a. Please call Nathan Dadap at 415-972-3654 if you have any questions concerning this approval.

Sincerely,


Arlene Kabei
Associate Director
Waste Management Division

cc (e-mail only):

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